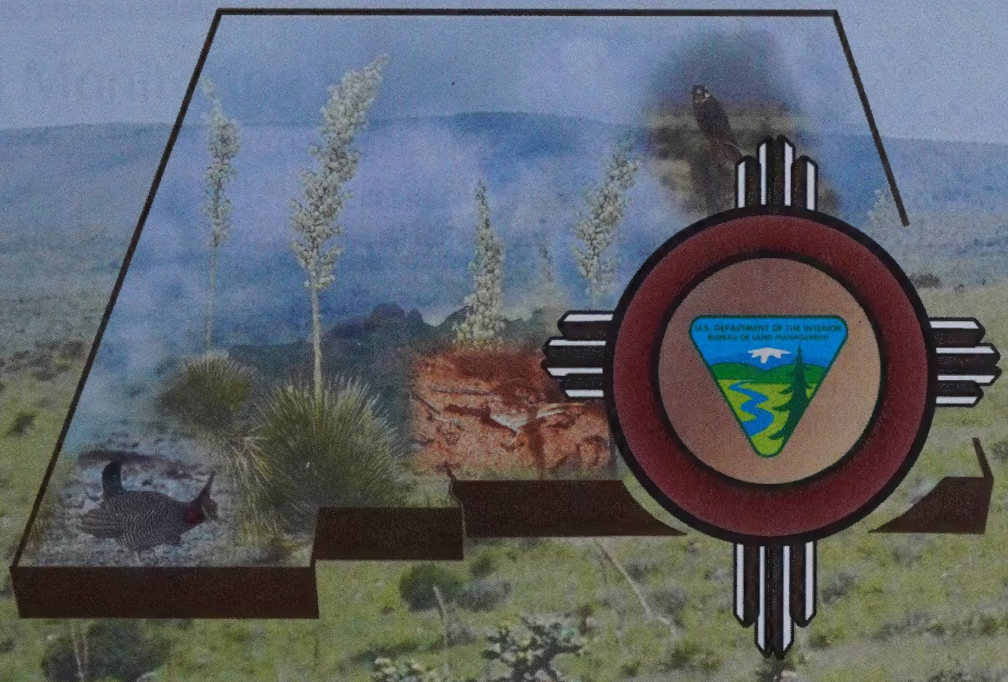
ID: 88081717 Box 3, Accordion 2, Item 03-09

CARLSBAD FIELD OFFICE

RANGE MONITORING DATABASE



2010

Range Monitoring Database

Overview

In the early 1990's, Carlsbad Field Office had a pilot program to automate the collection and analysis of range monitoring data. The range staff used hand-held polycorders for field data collection. An in-house computer program was written and when the polycorders were brought in from the field, they were downloaded to the computers and the program completed the calculations and analysis. This worked well for the office until approximately 2006 when the polycorders and computer program failed. When this happened, the Range staff was back to paper and pencil for data collection and calculations. We looked at different options to upgrade the range monitoring program and compared current handheld data recorders (Allegro) versus ruggedized tablet PCs. After reviewing both options, the rugged PC was chosen because of its greater capability for data collection and storage.

The Range Monitoring Database will be used to do the following:

- Collect, review, track, calculate and analyze Range Monitoring data
- Generate calculations and analyses
- Generate a variety of reports
- Establishes a photo library for field photos
- Links field data to GIS data
- Creates electronic folder and hyperlinks to electronic folder

Hardware/Software

Hardware

- Hand-held field going computer (Tuf Tab): Collect field data, create/review electronic documentation
- GPS Unit: Collect field data
- Digital & Video Camera: Capture field photos and videos

Software

- Microsoft Access database (used for front end) to collect, review and analyze field data
- SQL software to collect field data (used for back end)
- Microsoft Office: Word, Excel, PowerPoint, Picture Manager
- Adobe Reader: PDF documents
- ArcGIS 9.3: Utilize GIS while in the field

Brush Control Monitoring-Restore NM/HLI

This type of monitoring is a Line Intercept walking transect with a 100 ft tape. A representative site within the brush treatment is selected and a line intercept transect is set up. These transects are rapid to complete, usually ½ hour. They measure canopy cover rather than basal cover and are thus better suited to evaluate brush treatments. Photos are taken of the transect line and cardinal compass points from the post (360° view). These transects are run before and after the brush treatment (after the 2nd growing season rest).

Traditional Monitoring Studies

The CFO began running monitoring studies in approximately 1980. The types of monitoring as well as the methods of analysis of data was decided and agreed upon between the BLM, the Range Improvement Task Force, NMSU, Grazing Advisory Board, and ranchers. This monitoring is dormant season monitoring beginning at first frost. There are 3 types of transects completed:

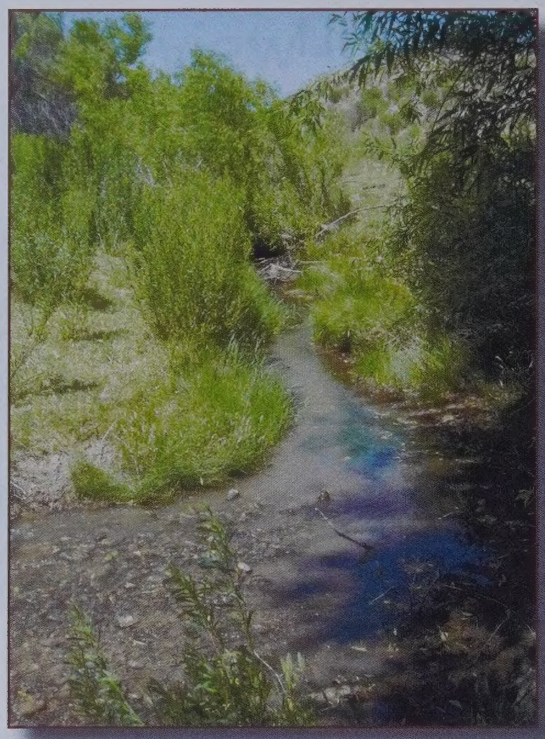
- Production transects (ecological range condition)
- Pacepoint transects (% basal cover and % composition-range trend)
- Utilization transects (level of livestock use)

Rangeland Health Assessments are completed at the same time and photos are taken. There are 3 production, 3 pacepoint , and 1 utilization transect run per study site. One study usually takes between 1.5 to 3 hours to complete.

Rangeland Health Assessments

Rangeland Health Assessments are used to determine whether areas are meeting Standards of Rangeland Health. These assessments are qualitative rather than quantitative in nature. In CFO they are done prior to NEPA analysis for permit renewal and also for Healthy Land Initiative projects.

Range Monitoring Database



Riparian-Proper Functioning Condition (PFC)

These assessments are completed where riparian restoration work has been done. We have baseline PFC data and as restoration work is completed we will go back and re-assess the area. Photos are taken and the assessment form is completed. The status of the site is determined. The three types of status are Functioning, At Risk, or Not Functioning. Once the status is determined, the appropriate monitoring type is decided.

Types of Monitoring

Site specific Riparian monitoring would include Habitat Suitability Index Models, Biological Surveys/Monitoring, Vegetation Resources, Hydrologic and Geomorphologic, Stream Characteristics, Water Quality, Pollution Source Assessments, Restoration Projects, and Fish Stockings.

GIS Features

All field data that is inputted and derived by the Range Monitoring Database will be available in GIS through the GIS layers mentioned below:

- Monitoring Site Location
- Brush Treatment
- Allotment
- Watersheds or Sub-basins
- Ecoregions
- Ecological Range Site
- Geographic Work Areas
- Major Land Resource Area (MLRA)

A model will be created in GIS that will identify which watershed, Bailey Ecoregions, allotment, range site geographical work areas, and MLRA the monitoring site locations falls in. The field data will be available through GIS to all resource specialists as well as managers.

Rangeland Health Assessment-Handwritten Form

ALT. #79019
PEÑASCO RIVER

Rangeland Health Evaluation Summary Worksheet

Part 1. Area of Interest Documentation

State New Mexico Office Carlsbad Field Office Management Unit Grazing Unit

Pasture/Watershed CUEVO ID# 13060010 Major Land Resource Area CP-4

BIG CUEVO #4

Location (description)

Legal T 11S, R 28E Sec. 32, NE 1/4, NE 1/4 or Lat 32°47'42.0", Long 105°27'16.9" or UTM Coord.

Size of Evaluation Area ~5 ACRES * Photo(s) Taken Yes ✓ No

Observer(s) S. DALY Date 4/4/2009

Ecological Site LIMESTONE HILLS Soil Map Unit Name ECTOR-ROCK OUTCROP COMPLEX EcD

----------Soil/Site Verification----------

Rangeland Ecological Site Description and/or Soil Survey					Area of Interest Determination				
Surface Texture COBBLY LOAM					Surface Texture				
Depth	Very Shallow	Shallow	Moderate	Deep	Depth	Very Shallow	Shallow	Moderate	Deep
	(<10")	(10"-20")	(20"-40")	(>40")		(<10")	(10"-20")	(20"-40")	(>40")
List Diagnostic horizons in profile and depth					List Diagnostic horizons in profile and depth				
1 A1-0-6"; CO LO		3 R-14"; FRAC. LIMESTONE			1		3		
2 CCA-6-14"; CO LO		4			2		4		

Parent Material LIMESTONE Slope 9-30 % Elevation 5,310 ft

Topographic Position RIDGE TOP Aspect SOUTH

Avg. Annual Precip. 12.5" Recent Weather (last 2 years) Drought (Normal) → Wet

Describe wildlife and livestock use and recent disturbances.

DEER, COYOTE, FOX, RODENTS, RAPTORS, SONG BIRDS, QUAIL

NO COWS IN THIS PASTURE; SAW A FEW (~10) IN MP PASTURE

Describe offsite influences on area of interest.

NONE NOTED

Rangeland Health Assessment-Handwritten Form

ERW = ECOLOGICAL REFERENCE WORKSHEET

Part 2. Indicator Rating

Attribute	Indicators	Departure from Ecological Site Description/ Ecological Reference Areas(s): Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
S, H	1. Rills					✓
Comments:	FEW NOTED; SMALL/SHORT – WELL ARMORED W/ ROCKY SURFACE					
S, H	2. Water Flow Patterns					✓
Comments:	FEW NOTED; SHORT/NOT CONNECTED					
S, H	3. Pedestals and/or Terracettes					✓
Comments:	NO PEDESTALS NOTED – FEW SMALL TERRACETTES					
S, H	4. Bare Ground					✓
Comments:	MATCHES ERW – SMALL BARE AREAS					
S, H	5. Gullies					✓
Comments:	MATCHES ERW – FEW/SMALL GULLIES NOTED					
S	6. Wind-Scoured, Blowouts, and/or Deposition Areas					✓
Comments:	NONE NOTED – GOOD VEG COVER; ROCKY, ARMORED SOILS					
H	7. Litter Movement					✓
Comments:	MOST LITTER ACCUMULATING IN SPACE					
S, H, B	8. Soil Surface Resistance to Erosion					✓
Comments:	MATCHES ERW – ROCKS PROTECT SOIL					
S, H, B	9. Soil Surface Loss or Degradation					
Comments:	MATCHES ERW – LITTLE/NO EVIDENCE OF S					
H	10. Plant Community Composition and Distribution Relative to Infiltration and Runoff					
Comments:	GOOD COVER, MOSTLY GRASS – NOT LOTS OF INFILT					
S, H, B	11. Compaction Layer					
Comments:	NONE OBSERVED – SHALLOW SOIL W/ ROCKS					
B	12. Functional/Structural Groups					

Attribute	Indicators	Departure from Ecological Site Description/ Ecological Reference Areas(s): Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
Comments:	MORE MUHLY THAN SIDEOATS; MORE BLUE THAN BLACK GRAMA					
B	13. Plant Mortality/Decadence					✓
Comments:	NOT MUCH MORTALITY NOTED					
H, B	14. Litter Amount					✓
Comments:	MATCHES ERW					
B	15. Annual Production					✓
Comments:	GOOD PRODUCTION					
B	16. Invasive Plants				✓	✓
Comments:	MATCHES ERW – A LITTLE JUNIPER, NOT BAD; HIGHER THAN EXPECTED NOXI SMT NOT BAD					
B	17. Reproductive Capability of Perennial Plants					✓
Comments:	GOOD SEED HEADS, SOME NEW (YOUNG) GRASSES NOTED					
B	18. Wildlife Habitat					✓
Comments:						
B	19. Wildlife Populations					✓
Comments:						
B	20. Special Status Species Habitat					✓
Comments:	N/A – NONE KNOWN					
B	21. Special Status Species Populations					✓
Comments:	N/A NONE KNOWN					

Rangeland Health Assessment-Handwritten Form

Part 3. Summary

A. Indicator Summary - Each of the indicators are associated with the one or more of the attributes below. An indicator is placed in a category (columns) above and summed for each of the Standard Attributes.

Standard Attributes		Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight	3
S	Soil/ Site Stability (Indicators 1-6, 8, 9, &11)					9	9
H	Hydrologic Function (Indicators 1-5, 7-11 & 14)					11	11
B	Biotic Integrity (Indicators 8-9, & 11-21)				2	11	13

B. Attribute Summary - In this table, the Extreme and Moderate to Extreme columns in the table above are merged to form the ADoes Not Meet@ column, Moderate becomes AMay Need More Info.@ and Slight to Moderate and None to Slight merge to form the AMeets@ columns. Values from the table above are summarized below. Space is provided for rationale of the determination. This space should most certainly be used when the determination by the ID team conflicts with the summarized values. Provide the sources of information that lead to the determination. X out the appropriate box for each attribute to denote final agreed upon determination by the ID team.

Attribute	Does Not Meet	May Need More Info.	Meets
Soil/ Site Stability Rationale: 9 OF 9 IN NONE TO SLIGHT			✓
Hydrologic Function Rationale: 11 OF 11 IN NONE TO SLIGHT			✓
Biotic Integrity Rationale: 11 OF 13 IN NONE TO SLIGHT; 2 OF 13 IN SLIGHT TO MODERATE			✓

SLIGHT TO MODERATE RATINGS DUE TO SLIGHT SHIFT IN GRASS COMPOSITION AND SLIGHTLY HIGHER SACAHUISTA COVER

Rangeland Health Assessment-Database Form

Rangeland Health Evaluation Summary Worksheet

NM-CFO-RHA-2009-0001

Part 1. Area of Interest Documentation

Observation Date: 4/4/2009 **Fiscal Year:** 2009

RHA Type: Grazing Unit 79019, Penasco River

State: New Mexico **Field Office:** Carlsbad Field Office

Legal Location: T17S, R18E, Sec. 32 NENE

Watershed Name: Rio Penasco

Major Land Resource Area: CP-4

Geographic Work Area: Cuevo

Ecological Range Site: Limestone Hills

Pasture Name: Big Cuevo Pasture

Study Name and #: Big Cuevo-4

Observer(s): Steve Daly

Size of Evaluation Area:

Photos Taken ☑

Soil/Site Verification

Map Unit Name: EcD, Ector-Rock outcrop complex, 9 to 30 percent slopes

Parent Material: calcareous alluvium and/or eolian deposits derived from sedimentary rock

Soils Series: Ector

Surface Texture: cobbly loam

Depth: Very Shallow, <10"

Topographic Position: ridges

Avg. Annual Precip: 12.75 **Aspect:** South

Recent Weather: Normal **Elevation:** 5310

List Diagnostic horizons in profile and depth

A1 - 0 - 1 in, grayish-brown stony loam, strongly calcareous

AC - 1 - 6 in, dark-brown stony loam, strongly calcareous

R - 6 - in, light-colored limestone bedrock

Soils Series Description:

The Ector series consists of very shallow to shallow, well-drained, calcareous, stony and extremely rocky soils that are underlain by limestone. Runoff is rapid after the soils become saturated. Permeability is moderate, and the water-holding capacity is very low to low

Recent Weather Additional Notes:

Normal to Wet

Wildlife and Livestock Description:

Deer, coyote, fox, rodents, raptors, song birds, quail. No cows in this pasture. Saw a few in MP Pasture

Off Site Influence Description:

None noted

Rangeland Health Assessment-Database Form

Part 2. Indicator Rating

Attribute	Indicators	Departure from Ecological Site Description/ Ecological Reference Area(s)				
		Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
S,H	**1. Rills**	☐	☐	☐	☐	☑
Comments:	*Few noted, small short, well armored with rocky surface*					
S,H	**2. Water Flow Patterns**	☐	☐	☐	☐	☑
Comments:	*Few noted, short, not connected*					
S,H	**3. Pedestals and/or Terracettes**	☐	☐	☐	☐	☑
Comments:	*No pedestals noted, few small terracettes*					
S,H	**4. Bare Ground**	☐	☐	☐	☐	☑
Comments:	*Matches site potential, small bare areas*					
S,H	**5. Gullies**	☐	☐	☐	☐	☑
Comments:	*matches site potential,few small gullies noted*					
S	**6. Wind-Scoured, Blowouts, and/or Deposition Area**	☐	☐	☐	☐	☑
Comments:	*None noted, good veg cover, rocky armored soils*					
H	**7. Litter Movement**	☐	☐	☐	☐	☑
Comments:	*Most litter accumulated in place*					
S,H,B	**8. Soil Surface Resistance to Erosion**	☐	☐	☐	☐	☑
Comments:	*Matches site potential, rocks protect soil*					
S,H,B	**9. Soils Surface Loss or Degradation**	☐	☐	☐	☐	☑
Comments:	*Matches site potential, little to no evidence of soil loss*					
H	**10. Plant Community Composition and Distributio**	☐	☐	☐	☐	☑
Comments:	*Good cover, mostly grass*					
S,H,B	**11. Compaction Layer**	☐	☐	☐	☐	☑
Comments:	*None observed*					
B	**12. Functional/Structural Groups**	☐	☐	☐	☑	☐
Comments:	*More muhly than side oats, more blue than black grama*					
B	**13. Plant Mortality/Decadence**	☐	☐	☐	☐	☑
Comments:	*Not much mortality noted*					
H,B	**14. Litter Amount**	☐	☐	☐	☐	☑
Comments:	*Matches site potential*					
B	**15. Annual Production**	☐	☐	☐	☐	☑
Comments:	*Good production*					
B	**16. Invasive Plants**	☐	☐	☐	☑	☐
Comments:	*Matches site potential,*					
B	**17. Reproductive Capa**					
Comments:	*Good seed heads, some*					

Attribute	Indicators	Departure from Ecological Site Description/ Ecological Reference Area(s)				
		Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
B	**18. Wildlife Habitat**	☐	☐	☐	☐	☑
Comments:	*No comments*					
B	**19. Wildlife Populations**	☐	☐	☐	☐	☑
Comments:	*No Comments*					
B	**20. Special Status Species Habitat**	☐	☐	☐	☐	☑
Comments:	*N/A*					
B	**21. Special Status Species Populations**	☐	☐	☐	☐	☑
Comments:	*N/A*					

Rangeland Health Assessment-Database Form

Part 3. Summary

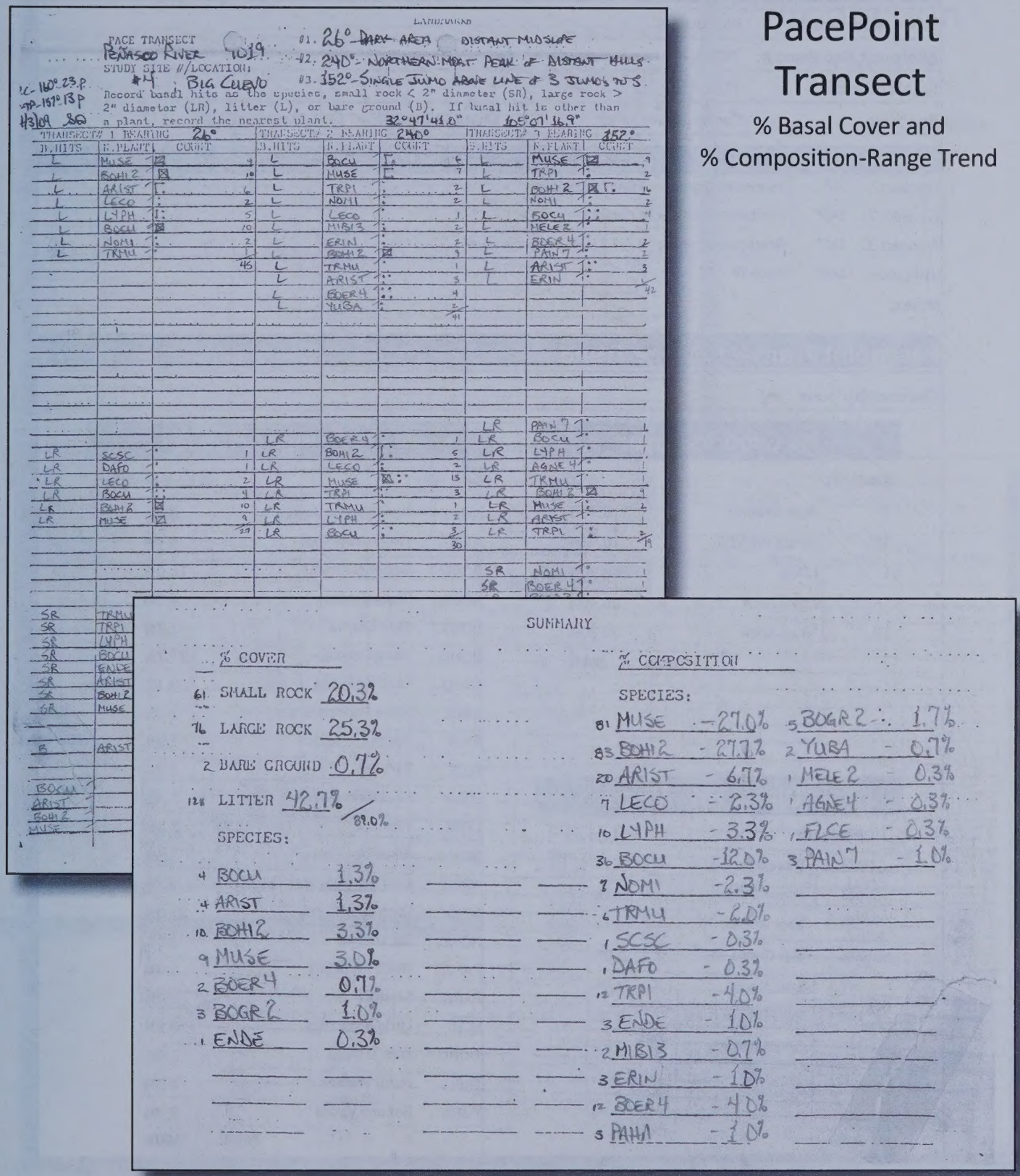
A. Indicator Summary-Each of the indicators are associated with the one or more of the attributes below. An indicator is placed in a category (columns) above and summed for each of the Standard Attributes.

	Standard Attributes	Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight	Total Attributes
S	Soil/Site Stability (Indicators 1-6, 8, 9 11)	0	0	0	0	9	9
H	Hydrologic Function (Indicators 1-5, 7-11 14)	0	0	0	0	11	11
B	Biotic Integrity (Indicators 8-9, 11-21)	0	0	0	2	11	13

B. Attribute Summary - In this table, the Extreme and Moderate to Extreme columns in the table above are merged to form the "Does Not Meet" column, Moderate becomes "May Need More Info". Slight to Moderate and None to Slight merge to form the "Meets" columns. Values from the table above are summarized below. Space is provided for rationale of the determination. This space should most certainly be used when the determination by the ID team conflicts with the summarized values. Provide the sources of information that lead to the determination. X out the appropriate box for each attribute to denote final agreed upon detemination by the ID team.

Attribute	Does Not Meet	May Need More Info.	Meets
Soil/Site Stability Rationale: 9 of 9 in "None to Slight"	☐	☐	☑
Hydrologic Function Rationale: 11 of 11 in "None to Slight"	☐	☐	☑
Biotic Integrity Rationale: 11 of 13 in "None to Slight", 2 of 13 in "Slight to Moderate"	☐	☐	☑
Overall Rangeland Health Assessment: Slight to Moderate ratings due to slight shift in grass composition and slightly higher Sacahuista cover	☐	☐	☑

Traditional Monitoring-Handwritten Form



LANDWARD

PACE TRANSECT: PEÑASCO RIVER 10/19
#1. 260° DRY AREA DISTANT MUSLOPE
#2. 240° NORTHERN MOST PEAK OF DISTANT HILLS
STUDY SITE #/LOCATION: #4 BIG CUEVO
#3. 152° SINGLE JUMO ABOVE LINE OF 3 JUMOS TO S
Record basal hits as the species, small rock < 2" diameter (SR), large rock > 2" diameter (LR), litter (L), or bare ground (B). If basal hit is other than a plant, record the nearest plant. 32°47'48.8" 105°07'16.9"

TRANSECT# 1 BEARING 260°			TRANSECT# 2 BEARING 240°			TRANSECT# 3 BEARING 152°		
B.HITS	B.PLANT	COVER	B.HITS	B.PLANT	COVER	B.HITS	B.PLANT	COVER
L	MUSE	9	L	BOCU	6	L	MUSE	9
L	BOHI2	10	L	MUSE	7	L	TRPI	2
L	ARIST	6	L	TRPI	2	L	BOHI2	16
L	LECO	2	L	NOMI	2	L	NOMI	2
L	LYPH	5	L	LECO	1	L	BOCU	4
L	BOCU	10	L	MIBI3	2	L	MELE2	1
L	NOMI	2	L	ERIN	2	L	BOER4	2
L	TRMU	1	L	BOHI2	3	L	PAIN7	2
		45	L	TRMU	1	L	ARIST	3
			L	ARIST	3		ERIN	1/42
			L	BOER4	4			
			L	YUBA	2/41			
						LR	PAIN7	1
			LR	BOER4	1	LR	BOCU	1
LR	SCSC	1	LR	BOHI2	5	LR	LYPH	1
LR	DAFO	1	LR	LECO	2	LR	AGNE4	1
LR	LECO	2	LR	MUSE	13	LR	TRMU	1
LR	BOCU	4	LR	TRPI	3	LR	BOHI2	4
LR	BOHI2	10	LR	TRMU	1	LR	MUSE	2
LR	MUSE	9	LR	LYPH	2	LR	ARIST	1
		27	LR	BOCU	3/30	LR	TRPI	2/19
						SR	NOMI	1
						SR	BOER4	1
SR	TRMU							
SR	TRPI							
SR	LYPH							
SR	BOCU							
SR	ENDE							
SR	ARIST							
SR	BOHI2							
SR	MUSE							
B	ARIST							
	BOCU							
	ARIST							
	BOHI2							
	MUSE							

SUMMARY

% COVER

61 SMALL ROCK 20.3%

76 LARGE ROCK 25.3%

2 BARE GROUND 0.7%

128 LITTER 42.7% / 89.0%

SPECIES:

4 BOCU 1.3%
4 ARIST 1.3%
10 BOHI2 3.3%
9 MUSE 3.0%
2 BOER4 0.7%
3 BOGR2 1.0%
1 ENDE 0.3%

% COMPOSITION

SPECIES:

81 MUSE - 27.0%
83 BOHI2 - 27.7%
20 ARIST - 6.7%
7 LECO - 2.3%
10 LYPH - 3.3%
36 BOCU - 12.0%
7 NOMI - 2.3%
6 TRMU - 2.0%
1 SCSC - 0.3%
1 DAFO - 0.3%
12 TRPI - 4.0%
3 ENDE - 1.0%
2 MIBI3 - 0.7%
3 ERIN - 1.0%
12 BOER4 - 4.0%
3 PAIN1 - 1.0%
5 BOGR2 - 1.7%
2 YUBA - 0.7%
1 MELE2 - 0.3%
1 AGNE4 - 0.3%
1 FLCE - 0.3%
3 PAIN7 - 1.0%

PacePoint Transect

% Basal Cover and
% Composition-Range Trend

Traditional Monitoring-Database Form

Traditional Monitoring

Monitoring Year: 2009

Study Name and #: Big Cuevo-4

Allotment Name and #: 79019, Penasco River

Legal Location: T17S, R18E, Sec. 32 NENE

Rancher: Penasco River Ranch, **MLRA/Range Site:** CP-4, Limestone Hills

Compass Bearing		Land Mark
Transect 1:	26*	Toward dark area on distant midslope
Transect 2:	240*	Northern most peak of distant hills
Transect 3:	152*	Single juniper above line of 3 junipers to the south
Utilization:	249*	From TP

Notes:

Pacepoint Transect-Range Trend

Monitoring Date: 04/03/2009

Observer(s): Steve Daly

% Ground Cover

Basal Hit		% Cover
B	Bare Ground	0.70%
DH	Direct Hit-VEG	10.90%
L	Litter	42.70%
LR	Large Rock	25.30%
SR	Small Rock	20.30%
	Total:	**100%**

Direct Hit - Veg

Plant Hit		% Cover
118	Three Awn Spp.	1.3%
143	Sideoats Grama	1.3%
144	Black Grama	0.7%
146	Blue Grama	1.0%
147	Hairy Grama	3.3%
228	Spike Pappus Grass	0.3%
340	Curlyleaf Muhly	3.0%
	Total:	**10.90%**

% Composition

Plant Hit		% Composition
AGNE4	New Mexico Agave	0.3%
ARIST	Three Awn Spp.	6.7%
BOCU	Sideoats Grama	12.0%
BOER4	Black Grama	4.0%
BOGR2	Blue Grama	1.7%
BOHI2	Hairy Grama	27.7%
DAFO	Feather Dalea	0.3%
ENDE	Spike Pappus Grass	1.0%
ERIN	Plains Lovegrass	1.0%
FLCE	Tarbush	0.3%
LECO	Fall Witchgrass	2.3%
LYPH	Wolftail	3.3%
MELE2	Blackfoot Daisy	0.3%
MIBI3	Catclaw Mimosa	0.7%
MUSE	Curlyleaf Muhly	27.0%
NOMI	Sacahuista	2.3%
PAHA	Hall's Panicum	1.0%
PAIN7	Mariola	1.0%
SCSC	Little Bluestem	0.3%
TRMU	Slim Tridens	2.0%
TRPI	Hairy Tridens	4.0%
YUBA	Banana Yucca	0.7%
	Total:	**100%**

Traditional Monitoring-Handwritten Form

Production Transect

Ecological Range Condition

ALLOTMENT NAME & NUMBER Peñasco River #9019 DATE 4 3 09

STUDY SITE & NUMBER BIG CUEVO #4 RANGE SITE & L.R.A. LIMESTONE HILLS CP-4

	SCSC	BOCU	MUSE	BOHI2	ARIST	TRPI	TRMU	BOER4	LECO	LYPH	ERIN	BOGR2	BOSA	AMA	MUAR2	MIBI3	NOMI	DATO	BACCH	DALE2	U A	PAIN7	CROTO	DYSSO	PARON	PPFF	ERWR
1	21	2															10										
2		1	13	2														2						1			
3			9	5	1	1	1																			1	1
4		5	5	1				1																1	1		
5		5	9	2					1	2	3																
6		4		2	3											4											
7		3	2	2						1																	
8			6	1	2	1						3													1		
9		4		2						1	5		5			3	2										
10		4	6	1																							
1			9	1		3		1																			
2			3		3						4								3								
3		5	4	1		1		5		2						1											
4		6	4	1	4			2		1		2															
5			5			3																					
6			5		1	1			1																		
7		3	2	2		1						1		1													
8		3		1															3								
9			2							2																	
10		10			3												5										
1			7	4						1				1													
2		6		2																							
3			5	2	1					1							1										
4					2	1																					
5								6							2												
6		2	3	5						1																	
7		1		5																							
8		3	5	1						1							2										
9			7	4	5	1											11										
10			3	4	3																						
Total	21	67	120	51	28	14	3	15	2	13	12	11	5	2	2	8	37	2	6								
Ave.	7	2.3	4.2	1.7	9.3	4.7	1	5	.7	4.3	4	3.7	1.7	.7	.7	2.7	12.3	.7	2								
DryWe	1	9.3	9.4	9.8	9.0	9.1	9.6	9.8	1	.7	1	.9	.9	.8	1	.7	5.8	.6	9.3								
DryGr	7	20.7	38.9	15.4	8.4	4.3	.9	4.9	.7	3.3	4	3.5	1.6	.6	.7	1.9	7.1	.5	1.9								
Lb/Ac	14	41.4	79	31.2	16.8	8.6	1.9	9.8	1.4	6.6	8	7	3.2	1.3	1.4	3.8	14.2	1	3.8								

Allotment Peñasco River 9019 Range Site CP-4 Limestone Hills L.R.A.

Pasture Big Cuevo-4 Date 4-3-09 By Steve Daly

SPECIES	PRESENT PRODUCTION POUNDS PER ACRE	% PRESENT	COMPOSITION ALLOWABLE	COMPOSITION CONDITION RATING
GRASSES Scsc	14	5	1-3	3
Bocu	41.4	15	15-25	15
Muse	79	28.8	15-20	20
Muar2	1.4	.5		
Bohi2 *	31.2	11.4 *	1-5	5
Bosa	3.2	1.2		
Arist	16.8	6.1	1-5	5
Trpi	8.6	3.1	1-5	3.8
Trmu	1.9	.7		
Boer4	9.8	3.6	10-25	3.6
Leco	1.4	.5	5-10	0.5
Lyph	6.6	2.4	2-5	2.4
Erin	8	2.9	5-10	2.9
Bogr2	7	2.6	5-15	2.6
Piha *	1.3/22.6	0.5 *		
SHRUBS, TREES, CACTI				
Mibi3	3.8	1.4	5-10	1.4
Nomi	14.2	5.2	1-5	5
Dale2	1.8	0.7		
Bacch	3.8	1.4	1-5	1.4
Dato	1	.4	5-10	0.4
Yuba	5.4	1.9	1-5	1.9
FORBS Pain7	6.2 /36.2	2.3	5-7	2.3
Croto	1.2	.4	1-3	1.2
Erwr	2.2	.8		
Dysso	1	.4	1-5	0.4
Paron	1.2	.4	1-3	0.6
PPFF	.6 /6.2	.2		
Total	274			78.4

Ecological Range Condition 78

Range Condition Class EXCELLENT

Traditional Monitoring-Database Form

Traditional Monitoring — Monitoring Year: 2009

Study Name and #: Big Cuevo-4

Allotment Name and #: 79019, Penasco River

Legal Location: T17S, R18E, Sec. 32 NENE

Rancher: Penasco River Ranch, **MLRA/Range Site:** CP-4, Limestone Hills

Compass Bearing		Land Mark
Transect 1:	26*	Toward dark area on distant midslope
Transect 2:	240*	Northern most peak of distant hills
Transect 3:	152*	Single juniper above line of 3 junipers to the south
Utilization:	249*	From TP

Notes:

Production — Green Weight to LBS/Acre

Observer(s): Steve Daly

Plant		Green Weight	Avg Green Weight	Percent Dry Weight	Dry Grams	LBS Per Acre
ARIST	Three Awn Spp.	28	9.3	0.9	8.4	16.8
BACCH	Seepwillow	6	2.0	0.93	1.9	3.8
BOCU	Sideoats Grama	67	22.3	0.93	20.7	41.4
BOER4	Black Grama	15	5.0	0.98	4.9	9.8
BOGR2	Blue Grama	11	3.7	0.94	3.5	7.0
BOHI2	Hairy Grama	51	17.0	0.92	15.6	31.2
BOSA	Silver Bluestem	5	1.7	0.92	1.6	3.2
CROTO	Croton Spp.	5	1.7	0.37	0.6	1.2
DAFO	Feather Dalea	2	0.7	0.66	0.5	1.0
DALE2	Sotol	5	1.7	0.53	0.9	1.8
DYSSO	Dogweeds	2	0.7	0.72	0.5	1.0
ERIN	Plains Lovegrass	12	4.0	1	4.0	8.0
ERWR	Wrights Buckwheat	5	1.7	0.66	1.1	2.2

Traditional Monitoring-Database Form

Production — Range Condition

Grass

Species	Present Production LBs Acre	% Present	Allowable Low	Allowable High	Condition Rating
LECO	1.4	0.5	5	10	0.5
BOCU	41.4	15.1	15	25	15.1
BOGR2	7.0	2.6	5	15	2.6
BOER4	9.8	3.6	10	25	3.6
ERIN	8.0	2.9	5	10	2.9
MUAR, MUSE	80.2	29.3	15	20	20
TRMU, TRPI	10.6	3.9	1	5	3.9
BOHI2, BOSA, PAHA	35.8	13.1	1	5	5
SCSC	14.0	5.1	1	3	3
LYPH	6.6	2.4	2	5	2.4
ARIST	16.8	6.1	1	5	5
	231.6	**84.5**			**64**

Forbs

Species	Present Production LBs Acre	% Present	Allowable Low	Allowable High	Condition Rating
CROTO, ERWR	3.4	1.2	1	3	1.2
PARON, PPFF	1.8	0.7	1	3	0.7
DYSSO	1.0	0.4	1	5	0.4
	6.2	**2.3**			**2.3**

Shrubs

Species	Present Production LBs Acre	% Present	Allowable Low	Allowable High	Condition Rating
DAFO	1.0	0.4	5	10	0.4
YUBA	5.4	2.0	1	5	2
DALE2, NOMI	16.0	5.8	1	5	5
BACCH	3.8	1.4	1	5	1.4
MIBI3	3.8	1.4	5	10	1.4
PAIN7	6.2	2.3	5	7	2.3
	36.2	**13.2**			**12.5**

Ecological Range Condition: 79

Range Condition Class: Excellent

Traditional Monitoring-Handwritten Form
Utilization Transect

Level of Livestock Use

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

UTILIZATION STUDY DATA
MODIFIED KEY FORAGE PLANT METHOD
(WEIGHT REMOVED BASIS)

STUDY NUMBER	DATE	EXAMINER
4	4-3-09	S. DALY

ALLOTMENT NAME & NUMBER	PASTURE
PEÑASCO RIVER 9019	BIG CUEVO

KIND AND/OR CLASS OF ANIMAL	PERIOD OF USE
CATTLE	YEARLONG

CLASS INTERVAL	INT MID (M)	KEY SPECIES BOCU: DOT COUNT	NO BY CLASS (C)	NO X MIDPT (C)(M)	KEY SPECIES BOER4: DOT COUNT	NO BY CLASS (C)	NO X MIDPT (C)(M)	KEY SPECIES LECO: DOT COUNT	NO BY CLASS (C)	NO X MIDPT (C)(M)	KEY SPECIES MUSE, BOGR2, TRFR, SOGR2, LYPH, ARAT, ER OVERALL: DOT COUNT	NO BY CLASS (C)	NO X MIDPT (C)(M)
NO USE 0-5%	2.5												
SLIGHT 6-20%	13	2,6,9,	3	39	1,2,4,6,7,9,10	7	91	1,2,3,6,7,	5	65	2,6,7,9	4	52
LIGHT 21-40%	30	1,3,4,5,7,8,10	7	210	5,8,	2	60	5,	1	30	1,3,4,5,8,10	6	180
MODERATE 41-60%	50												
HEAVY 61-80%	70												
SEVERE 81-100%	90												
		TOTALS	10	249	TOTALS	9	151	TOTALS	6	95	TOTALS	10	232
AVG. UTIL. = ΣCM% / ΣC		249/10 = 24.9 → 25			151/9 = 16.7 → 17			95/6 = 15.8 → 16			232/10 = 23.2 → 23		

NOTES (USE OTHER SIDE OR ANOTHER PAGE, IF NECESSARY)
FROM TREND PLOT - 249°. - 10 POINTS @ 10 PACE INTERVALS

MUSE USE IN SLIGHT RANGE - PT. 6,9,
MUSE USE IN LIGHT RANGE - PTS 1,2,3,4,5,7,8,10

GOOD PRODUCTION, VIGOR, REPRODUCTION (SEED HEADS) ON GRASSES

MUSE SEEMS TO BE PREFERRED GRASS, SHOWS MOST USE - STILL IN LIGHT RANGE

BOTH OF BLUEWATER/CUERVO SHOWS HIGH MOD → HIGH HEAVY USE BETWEEN H_2O's

PELLET GROUP TRANSECT DATA

Plot #	Deer	Elk	Live?
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total:			

*WHERE C = THE NUMBER OF OBSERVATIONS WITHIN EACH CLASS INTERVAL (C COLUMN), M = THE CLASS INTERVAL MIDPOINT (M COLUMN), AND Σ = THE SUMMATION SYMBOL.

Revised 7/30/

Traditional Monitoring-Database Form

Traditional Monitoring — Monitoring Year: 2009

Study Name and #: Big Cuevo-4

Allotment Name and #: 79019, Penasco River

Legal Location: T17S, R18E, Sec. 32 NENE

Rancher: Penasco River Ranch, **MLRA/Range Site:** CP-4, Limestone Hills

Compass Bearing		Land Mark
Transect 1:	26*	Toward dark area on distant midslope
Transect 2:	240*	Northern most peak of distant hills
Transect 3:	152*	Single juniper above line of 3 junipers to the south
Utilization:	249*	From TP

Notes:

Range Utilization-Key Forage Plant Method — Monitoring Date: 04/03/2009

Observer(s):

Season of Use: ☐ Winter ☐ Spring ☐ Summer ☐ Fall ☑ Yearlong

Class of Stock: ☑ Cattle ☐ Sheep ☐ Goats ☑ Horses

Classes	Midpoint	%
No Use	2	0-5%
Slight	13	6-20%
Light	30	21-40%
Moderate	50	41-60%
Heavy	70	61-80%
Severe	90	81-100%

Species: BOCU, Sideoats Grama

Comments:

Interval		Interval Midpoint	Frequency	Frequency Total
Slight	6-20%	13	3	39
Light	21-40%	30	7	210
		Total:	**10**	**249**
		Average Utilization:	**24.9**	**Light**

Utilization Description: Range appears skimmed or grazed in patches. 60-80% of current seedstalks intact.

Species: BOER4, Black Grama

Comments:

Interval		Interval Midpoint	Frequency	Frequency Total
Slight	6-20%	13	7	91
Light	21-40%	30	2	60
		Total:	**9**	**151**
		Average Utilization:	**16.8**	**Slight**

Utilization Description: Key forage plants slightly used. Current seedstalks little disturbed.

Species: LECO, Fall Witchgrass

Comments:

Interval		Interval Midpoint	Frequency	Frequency Total
Slight	6-20%	13	5	65
Light	21-40%	30	1	30
		Total:	**6**	**95**
		Average Utilization:	**15.8**	**Slight**

Utilization Description: Key forage plants slightly used. Current seedstalks little disturbed.

Species: OVERALL, Overall

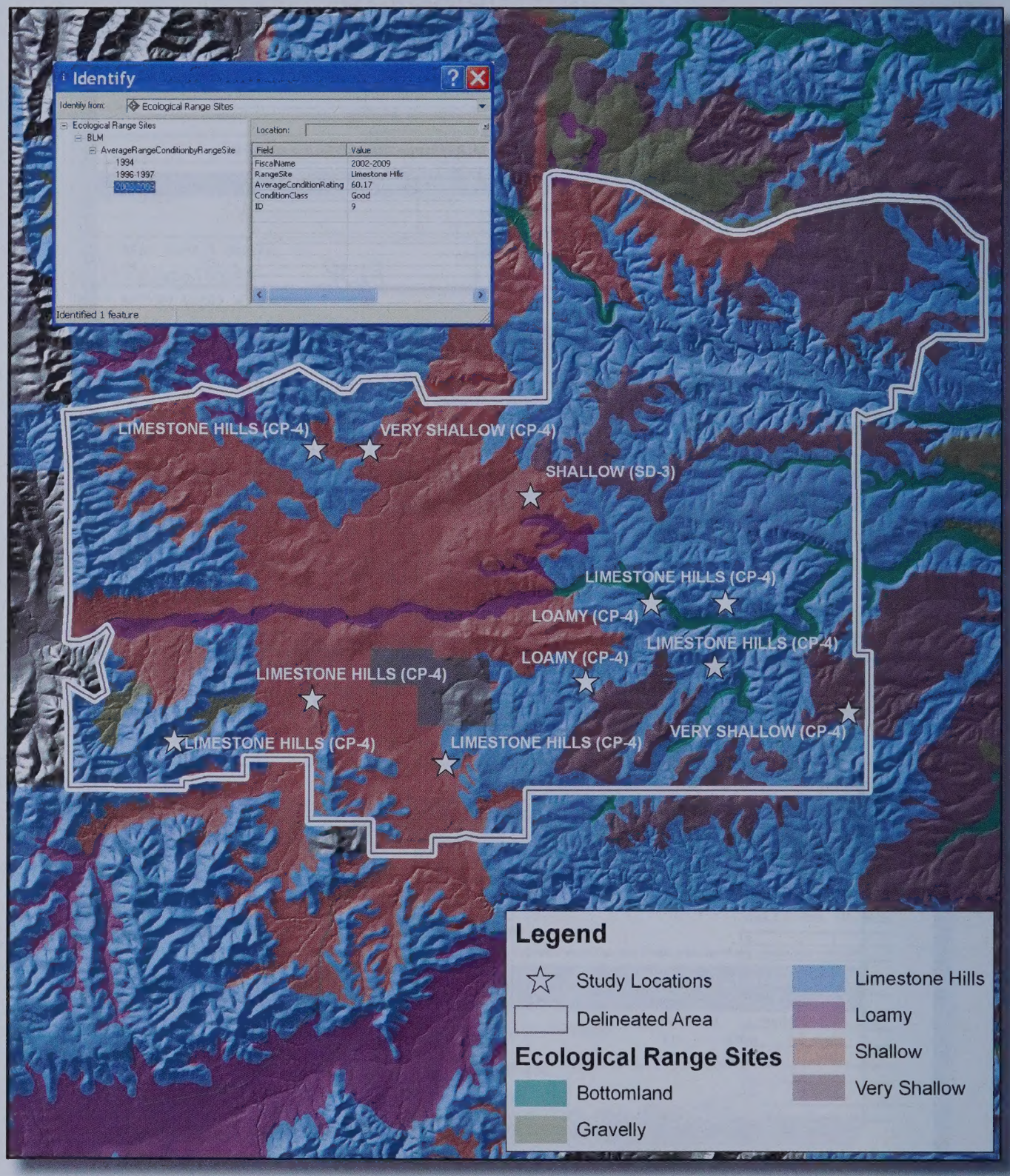
Comments:

Interval		Interval Midpoint	Frequency	Frequency Total
Slight	6-20%	13	4	52
Light	21-40%	30	6	180
		Total:	**10**	**232**
		Average Utilization:	**23.2**	**Light**

Utilization Description: Range appears skimmed or grazed in patches. 60-80% of current seedstalks intact.

Ecological Range Sites within a Delineated Area

Displaying ecological condition through GIS, by range site, by year.



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Additional Notes

Additional Notes